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Attorney's Docket No.: 01997-253005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Jae S. Lim
Serial No. : 09/335,376
Filed : June 17, 1999
Title : ENCODING, DECODING AND COMPRESSION OF AUDIO-TYPE DATA USING REFERENCE COEFFICIENTS LOCATED WITHIN A BAND OF COEFFICIENTS

Art Unit : 2741
Examiner : Smits, T.

2641

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Washington, D.C. 20231

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BRIEF ON APPEAL

(1) Real Party in Interest

Massachusetts Institute of Technology, the assignee, is the real party in interest.

(2) Related Appeals and Interferences

There are no related appeals or interferences.

(3) Status of Claims

Claims 9, 11-16, 18-21, 23, 28-35, 37-50, 54, 55, 57-64, 66-72, 74-77, 79-81, 85-88, 96, 97, 99-102, 106-109, 116-120, 122-126, 128-131, 133-137 and 139-153 are stand rejected under 35 U.S.C. 251 as being an improper recapture of subject matter deliberately surrendered in the application for the patent upon which the present reissue is based and its parent applications.

(4) Status of Amendments

All amendments have been entered.

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I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, Washington, D.C. 20231.

December 13, 2001
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Joanne D. Boyle
Signature

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(5) Summary of Invention

The invention has to do with digital encoding of the type in which a signal is transformed into discrete signal elements (e.g., transform coefficients). The signal elements are discrete along a dimension (e.g., a frequency dimension). The problem is to represent the discrete signal elements with the least number of digital bits. In one aspect, the invention goes about doing that by dividing the signal elements into a plurality of bands, with at least one band having a plurality of adjacent signal elements (e.g., a frequency band in which there are a plurality of transform coefficients at different frequencies within the band). Then, a signal element from each of the bands is selected, and a transformation is performed on the selected signal elements. The selection can be made based on the relative size of the signal elements (e.g., the largest element in the band). The transformation can reduce the number of bits required to represent the selected signal elements.

(6) Issues

Whether the examiner has met his obligation to identify the patentability arguments in the parent applications that he asserts are the basis of his rejection under the recapture doctrine?[1]

(7) Grouping of Claims

Because this appeal is based narrowly on the examiner's failure to provide a basis for his recapture rejection, all of the claims may be considered as one group. Were this an appeal on the merits of the recapture rejection—something only possible after the basis for the examiner's rejection is known—each independent claim would need to be considered separately.

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[1] Although he did not repeat the rejection in the final office action, the examiner had earlier rejected the claims as being based on a defective reissue declaration. Applicant has offered to submit a new declaration once there is an indication of allowability. The new declaration would address the examiner's concern that the declaration provide more specificity as to the error relied upon to support the reissue application. Thus, this issue is not one that the Board needs to address. .

(8) Argument

The examiner has rejected all of the new claims presented in the reissue application under 35 USC 251 as being an improper recapture of subject matter deliberately surrendered in the parent applications. The rejection is based on the surrender by argument doctrine set forth in *Hester Industries, Inc. v. Stein, Inc., 142 F.2d 1427, 46 USPQ2d 1641 (Fed. Cir. 1998).*

The examiner made a recapture rejection of the same claims in his first office action (January 11, 2000), but there he relied on amendments in the parent applications as the basis for the deliberate surrender. He provided a long list of claim limitations paraphrased from claims allowed following cancellation of broader claims during prosecution. The examiner's position was that any claim presented during reissue must recite the identical or more narrow versions of at least one of these limitation or be impermissible recapture.

Applicant filed a response (June 12, 2000) establishing that there had, in fact, been no amendment, and thus clearly no surrender by amendment. The response pointed out that broader claims cancelled early on in prosecution were later presented and allowed in continuation applications (with notice being made at the time of initial cancellation that the claims would be later presented). The examiner issued a second office action (July 26, 2000), in which he agreed with applicant on the impropriety of a surrender by amendment rejection. But he asserted that there had been surrender by argument, and he maintained the recapture rejection. He wrote (paragraph 3, page 2; emphasis added):

> Applicant's argument that "there are no 'canceled or amended claims' on which to base application of the recapture rule" (Amendment, p. 2-3), based on examiner's use of an obsolete formulation of a recapture rejection making reference only to canceled claims, while correct, is misleading, for this is not the only surrender of subject matter may occur.
>
> The Court in *Hester* held that surrender which forms the basis for impermissible recapture "can occur through arguments alone", even where there was no claim change made (142 F.3d at 1482, 46 USPQ2d at 1649).

But in substituting his new surrender-by-argument rejection for his earlier surrender-by-amendment rejection, the examiner failed to refer to any arguments made during prosecution. Instead, he attempted a verbal slight of hand, by referring to his prior list of paraphrased claim

limitations as the basis for his new rejection based on arguments. He wrote (paragraph 3, page 4; emphasis in original):

> Thus, if the limitation now being omitted or broadened in the present reissue was originally **presented/argued/stated** in the original application to make the claims allowable over a rejection or objection made in the original application, the omitted limitation relates to subject matter previously surrendered by applicant, and impermissible recapture exists.

But this reasoning does not hold water. His reference to "presented/argued/stated" is an effort to improperly equate an argument with mere presentation of a claim limitation. Simply because a claim limitation was included in claims presented and allowed in prosecution of the patent applications certainly does not mean that there has been an argument for patentability based on that limitation. Typically, a claim will contain numerous limitations that are never made the subject of patentability arguments (let alone arguments that are made with such force and repetition that they would qualify as deliberate surrender). And this is, in fact, the case with the limitations in the examiner's list. They are paraphrased from the narrower claims allowed in the earlier parent applications. The original, broader claims were later allowed.

Applicant filed a further response (January 26, 2001) pointing all of this out to the examiner. It was noted that his list of paraphrased claim limitations bore no resemblance to arguments made during prosecution. Applicant asked the examiner to point out the prosecution arguments on which his surrender by argument rejection was based.

But the examiner refused to do so. He issued a third, and final, office action (March 14, 2001), in which he again maintained that his list of paraphrased claim limitations is sufficient basis for his rejection. Surprisingly, he even went so far as to indicate that the listed limitations "are all paraphrased from applicant's persuasive arguments for allowability". Nothing could be further from the truth. The list is without question simply a list of limitations of claims allowed after cancellation of broader claims. Indeed, that is exactly how the examiner described the list when first presenting it (Action of June 17, 1999; emphasis in original):

> The rejected claims are broader in an aspect germane to a prior art rejection by *failing to recite more narrow versions of any of* the following **limitations**, listed next in paraphrased form) under the respective Patent and Application number pairs, *at least one of which* limitations was needed for the allowability of every

one of the allowed independent claims in said parent, and related continuing, applications, as indicated by their prosecution history.

An examiner's most fundamental obligation is to inform an applicant of the reason for a rejection. 35 USC 132(a). Just as an examiner may not reject claims as unpatentable without identifying the prior art on which the patentability rejection is based, an examiner may not reject claims as impermissible recapture without identifying the amendments or arguments on which the conclusion of deliberate surrender is based. Here, by the examiner's own admission there are no amendments on which to base a recapture rejection, and the examiner has without question failed to identify a single argument on which he has based his conclusion of deliberate surrender.

Accordingly, the rejection should be overturned, and the examiner directed to review the file histories of the parent applications and provide applicant with the basis for his rejection, or alternatively to withdraw the rejection.

The brief fee of $320 is enclosed. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 12/13/01

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Appendix of Claims

9. A method of encoding a signal defined by signal elements that are discrete in at least one dimension, the method comprising:

dividing at least some of the signal elements into a plurality of bands, at least one band having a plurality of adjacent signal elements;

selecting a signal element from each of more than one of the bands, at least one of the selected signal elements being from one of the bands having a plurality of adjacent signal elements; and

performing a transformation on the selected signal elements.

11. The method of claim 9 wherein selecting the signal element comprises identifying the signal element having a preselected size relative to the other signal elements within a band.

12. The method of claim 9 wherein performing a transformation comprises performing a transformation on the magnitudes of the selected signal elements.

13. The method of claim 9 wherein the signal elements comprise samples of a signal.

14. The method of claim 9 wherein the signal elements comprise transform coefficients.

15. The method of claim 14 wherein the transform coefficients comprise transform coefficients derived from a frame obtained by applying a window to samples of a signal.

16. The method of claim 14 wherein the transform coefficients correspond to at least one of the following: discrete cosine transform coefficients and time-domain aliasing cancellation coefficients.

18. The method of claim 9 wherein performing the transformation comprises using a transformation that reduces the average number of bits needed to encode the selected signal elements.

19. The method of claim 9 further comprising quantizing results of the transformation.

20. The method of claim 19 further comprising using the quantized results of the transformation to encode signal elements.

21. The method of claim 20 wherein using the quantized results of the transformation comprises allocating bits to signal elements.

23. The method of claim 9 further comprising using the selected signal elements to encode signal elements.

28. A method of encoding a signal defined by signal elements that are discrete in at least one dimension, the method comprising:

dividing at least some of the signal elements into a plurality of bands, at least one band having a plurality of adjacent signal elements;

selecting a signal element from each of more than one of the bands, at least one of the selected signal elements being from one of the bands having a plurality of adjacent signal elements;

processing the selected signal elements; and

performing a transformation on the processed selected signal elements.

29. The method of claim 28 wherein the processing comprises quantizing.

30. The method of claim 29 wherein the quantizing comprises quantizing the magnitudes of the selected signal elements.

31. The method of claim 30 wherein the quantizing the magnitudes of the selected signal elements comprises quantizing the magnitudes using exponents associated with the magnitudes.

32. The method of claim 28 wherein the processing comprises a non-linear mapping.

33. The method of claim 28 wherein selecting the signal element comprises identifying the signal element having the largest magnitude within a band.

34. The method of claim 28 wherein selecting the signal element comprises identifying the signal element having a preselected size of magnitude relative to other signal elements within a band.

35. The method of claim 28 wherein performing the transformation comprises performing at least one of the following: a discrete cosine transformation and a discrete Fourier transformation.

37. The method of claim 28 wherein the signal elements comprise transform coefficients.

38. The method of claim 37 wherein the transform coefficients comprise transform coefficients derived from a frame obtained by applying a window to samples of a signal.

39. The method of claim 37 wherein the transform coefficients correspond to at least one of the following: discrete cosine transform coefficients and time-domain aliasing cancellation coefficients.

40. The method of claim 28 wherein performing the transformation comprises using a transformation that reduces the average number of bits needed to encode the processed selected signal elements.

41. The method of claim 28 further comprising using the processed selected signal elements to encode signal elements.

42. The method of claim 41 wherein using the processed selected signal elements to encode signal elements comprises using the processed selected signal elements to encode signal elements in the respective bands of the selected signal elements.

43. The method of claim 41 wherein using the processed selected signal elements to encode signal elements comprises allocating bits to the signal elements.

44. The method of claim 41 wherein using the processed selected signal elements to encode signal elements comprises determining reconstruction levels for signal elements.

45. A method of encoding a signal defined by signal elements that are discrete in at least one dimension, the signal elements comprising transform coefficients obtained using samples of the signal, the method comprising:

dividing at least some of the signal elements into a plurality of bands, at least one band having a plurality of adjacent signal elements;

selecting a signal element from each of more than one of the bands, the selected signal element having a preselected size of magnitude relative to the other signal elements within one of the bands, at least one of the selected signal elements being from one of the bands having a plurality of adjacent signal elements;

processing the selected signal elements, the processing including quantizing the magnitudes of the selected signal elements; and

transforming the processed selected signal elements using a transformation that reduces the average number of bits needed to encode the processed selected signal elements.

46. The method of claim 45 further comprising encoding the transformed processed selected signal elements.

47. A method of decoding, comprising:

receiving an encoded signal, the signal being defined by signal elements that are discrete in at least one dimension, the encoded signal of the type encoded by:

dividing at least some of the signal elements into a plurality of bands, at least one band having a plurality of adjacent signal elements;

selecting a signal element from each of more than one of the bands, at least one of the selected signal elements being from one of the bands having a plurality of adjacent signal elements; and

performing a transformation on the selected signal elements; and

decoding at least some of the received encoded signal, the decoding comprising performing an inverse transformation.

48. The method of claim 47 wherein performing an inverse transformation comprises performing an inverse transformation on the transformed selected signal elements.

49. The method of claim 47 wherein performing the inverse transformation comprises performing at least one of the following: an inverse discrete Fourier transformation and an inverse discrete cosine transformation.

50. The method of claim 47 wherein decoding comprises using results of the inverse transformation to decode signal elements.

54. The method of claim 47 wherein the signal elements comprise transform coefficients.

55. The method of claim 54 wherein the transform coefficients comprise transform coefficients derived from a frame obtained by applying a window to samples of a signal.

57. A method of decoding, comprising:

receiving an encoded signal, the signal being defined by signal elements that are discrete in at least one dimension, the encoded signal of the type encoded by:

dividing at least some of the signal elements into a plurality of bands, at least one band having a plurality of adjacent signal elements;

selecting a signal element from each of more than one of the bands, at least one of the selected signal elements being from one of the bands having a plurality of adjacent signal elements;

processing the selected signal elements; and

performing a transformation on the processed selected signal elements; and

decoding at least some of the received signal, the decoding comprising performing an inverse transformation.

58. The method of claim 57 wherein the performing an inverse transformation comprises performing an inverse transformation on the transformed processed selected signal elements.

59. The method of claim 57 wherein the processing comprises quantizing the magnitudes of the selected signal elements.

60. The method of claim 59 wherein the quantizing the magnitudes of the selected signal elements comprises quantizing the magnitudes using exponents associated with the magnitudes.

61. The method of claim 57 wherein the processing comprises a non-linear mapping.

62. The method of claim 57 wherein decoding comprises using results of the inverse transformation to decode signal elements.

63. The method of claim 62 wherein using results of the inverse transformation comprises using the results to decode the signal elements from the respective bands of the selected signal elements.

64. The method of claim 62 wherein using the results of the inverse transformation comprises determining reconstruction levels for signal elements.

66. The method of claim 57 wherein the signal elements comprise transform coefficients.

67. The method of claim 66 wherein the transform coefficients comprise transform coefficients derived from a frame obtained by applying a window to samples of a signal.

68. The method of claim 66 wherein decoding further comprises performing an inverse transformation on the decoded signal elements.

69. A method of encoding a signal defined by transform coefficients that are discrete in at least one dimension, the method comprising:

determining a division of at least some of the transform coefficients into a plurality of bands, at least one of the bands having a plurality of adjacent transform coefficients; and

providing information describing the determined division.

70. The method of claim 69 wherein providing information describing the determined division comprises encoding information describing the determined division.

71. The method of claim 70 further comprising encoding at least some of the transform coefficients using the determined division.

72. The method of claim 70 wherein the determining comprises dividing based on at least one signal characteristic.

74. The method of claim 72 wherein the at least one signal characteristic comprises a magnitude of at least one transform coefficient.

75. The method of claim 72 wherein the at least one signal characteristic comprises a difference between transform coefficients.

76. The method of claim 75 wherein the difference comprises a difference in transform coefficient magnitudes.

77. The method of claim 70 wherein the determining comprises beginning a new band when adjacent transform coefficients significantly differ in magnitude.

79. The method of claim 70 wherein the determining comprises dividing the transform coefficients such that at least one band has a number of transform coefficients that is a power of two.

80. The method of claim 70 wherein the determining comprises dividing the transform coefficients such that at least two bands include a different number of signal elements.

81. The method of claim 70 wherein the encoding information describing the dividing comprises encoding the number of transform coefficients included in at least one band.

85. The method of claim 70 wherein the transform coefficients comprise transform coefficients derived from a frame obtained by applying a window to samples of a signal.

86. The method of claim 70 wherein the transform coefficients comprise at least one of the following: discrete cosine transform coefficients and time-domain aliasing cancellation coefficients.

87. The method of claim 70 wherein the determining differs for different signals.

88. The method of claim 70 wherein the determining differs for different frames.

96. A method of decoding, comprising:

receiving an encoded signal, the signal being defined by transform coefficients that are discrete in at least one dimension, the encoded signal of the type encoded by:

determining a division of at least some of the transform coefficients into a plurality of bands, at least one of the bands having a plurality of adjacent transform coefficients; and

encoding information describing the determined division; and

decoding at least part of an encoded signal, the decoding comprising using the received encoded information describing the determined division.

97. The method of claim 96 wherein the information describing the division comprises information based on at least one characteristic of an encoded signal.

99. The method of claim 97 wherein the at least one signal characteristic comprises a magnitude of at least one transform coefficient.

100. The method of claim 97 wherein the at least one signal characteristic comprises a difference between transform coefficients.

101. The method of claim 96 wherein the division comprises a division of the transform coefficients such that at least two bands include a different number of transform coefficients.

102. The method of claim 96 wherein the information comprises the number of transform coefficients included in at least one band.99. The method of claim 97 wherein the at least one signal characteristic comprises a magnitude of at least one signal element.

106. The method of claim 96 wherein the transform coefficients comprise transform coefficients derived from a frame obtained by applying a window to samples of a signal.

107. The method of claim 96 wherein the transform coefficients comprise at least one of the following: discrete cosine transform coefficients and time-domain aliasing cancellation coefficients.

108. The method of claim 96 wherein the information differs for different signals.

109. The method of claim 96 wherein the information differs for different frames.

116. A method of encoding a signal defined by signal elements that are discrete in at least one dimension, the method comprising:

dividing at least some of the signal elements into a plurality of bands, at least one band having a plurality of adjacent signal elements;

selecting a signal element from each of more than one of the bands, at least one of the selected signal elements being from one of the bands having a plurality of signal elements;

processing the selected signal elements;

performing a transformation on the processed selected signal elements;

encoding the transformed processed selected signal elements; and

encoding information describing the dividing.

117. The method of claim 116 wherein selecting the signal element comprises identifying the signal element having a preselected size of magnitude relative to the other signal elements within a band.

118. The method of claim 116 wherein processing the selected signal elements comprises quantizing.

119. The method of claim 118 wherein quantizing comprises quantizing magnitudes of the selected signal elements.

120. The method of claim 119 wherein the quantizing the magnitudes of the selected signal elements comprises quantizing the magnitudes using exponents associated with the magnitudes.

122. The method of claim 116 wherein the signal elements comprise transform coefficients.

123. The method of claim 122 wherein the transform coefficients comprise transform coefficients derived from a frame obtained by applying a window to samples of a signal.

124. The method of claim 122 wherein the transform coefficients correspond to at least one of the following: discrete cosine transform coefficients and time-domain aliasing cancellation coefficients.

125. The method of claim 116 further comprising using the processed selected signal elements to encode signal elements.

126. The method of claim 116 wherein the encoding information describing the dividing comprises encoding the number of signal elements included in at least one band.

128. A method of decoding, comprising:

receiving an encoded signal, the signal being defined by signal elements that are discrete in at least one dimension, the encoded signal of the type encoded by:

dividing at least some of the signal elements into a plurality of bands, at least one band having a plurality of adjacent signal elements;

selecting a signal element from each of more than one of the bands, at least one of the selected signal elements being from one of the bands having a plurality of signal elements;

processing the selected signal elements;

performing a transformation on the processed selected signal elements;

encoding the transformed processed selected signal elements; and

encoding information describing the dividing; and

decoding at least some of the received encoded signal, the decoding comprising:

using the information describing the dividing; and

performing an inverse transformation.

129. The method of claim 128 wherein performing an inverse transformation comprises performing an inverse transformation on the transformed processed selected signal elements.

130. The method of claim 128 wherein selecting the signal element comprises identifying the signal element having the largest magnitude within a band.

131. The method of claim 128 wherein selecting the signal element comprises identifying the signal element having a preselected size of magnitude relative to the other signal elements within a band.

133. The method of claim 128 wherein the signal elements comprise transform coefficients.

134. The method of claim 133 wherein the transform coefficients comprise transform coefficients derived from a frame obtained by applying a window to samples of a signal.

135. The method of claim 133 wherein the transform coefficients correspond to at least one of the following: discrete cosine transform coefficients and time-domain aliasing cancellation coefficients.

136. The method of claim 128 further comprising using the selected signal elements to encode signal elements.

137. The method of claim 128 wherein the encoding information describing the dividing comprises encoding the number of signal elements included in at least one band.

139. A method of encoding an audio-type signal, the method comprising:

sampling the audio-type signal to obtain discrete samples and constructing therefrom frames, each frame obtained by applying a window to the discrete samples;

determining a set of transform coefficients from each of at least some of the frames; and

for each of at least some of the sets of transform coefficients:

dividing at least some of the transform coefficients into a plurality of bands, at least one band having a plurality of adjacent transform coefficients;

selecting a transform coefficient from each of more than one of the bands, at least one of the selected transform coefficients being from one of the bands having a plurality of adjacent transform coefficients;

processing the selected transform coefficients; and

performing a transformation on the processed selected transform coefficients.

140. The method of claim 139 wherein processing comprises quantizing the magnitudes of the selected transform coefficients.

141. The method of claim 139 wherein selecting the transform coefficient comprises identifying the transform coefficient having a preselected size relative to other transform coefficients within a band.

142. A method of encoding an audio-type signal, the method comprising:

sampling the audio-type signal to obtain discrete samples and constructing therefrom frames, each frame obtained by applying a window to the discrete samples;

determining a set of transform coefficients from each of at least some of the frames;

for each of at least some of the sets of transform coefficients:

dividing at least some of the transform coefficients into a plurality of bands, at least one band having a plurality of adjacent transform coefficients; and

encoding the dividing.

143. The method of claim 142 further comprising encoding at least some of the transform coefficients using the determined division.

144. The method of claim 142 wherein the dividing differs for different frames.

145. A method of decoding an audio-type signal, the method comprising:

receiving an encoded audio-type signal, the encoded signal of the type encoded by:

sampling the audio-type signal to obtain discrete samples and constructing therefrom frames, each frame obtained by applying a window to the discrete samples;

determining a set of transform coefficients from each of at least some of the frames;

for each of at least some of the sets of transform coefficients:

dividing at least some of the transform coefficients into a plurality of bands, at least one band having a plurality of adjacent transform coefficients;

selecting a transform coefficient from each of more than one of the bands, at least one of the selected transform coefficients being from one of the bands having a plurality of adjacent transform coefficients;

processing the selected transform coefficients; and

performing a transformation on the processed selected transform coefficients; and

decoding the received encoded audio-type signal, the decoding comprising performing an inverse transformation.

146. The method of claim 145 wherein performing an inverse transformation comprises performing an inverse transformation on the transformed processed selected transform coefficients.

147. The method of claim 145 wherein processing comprises quantizing the magnitudes of the selected transform coefficients.

148. The method of claim 145 wherein selecting the transform coefficient comprises identifying the transform coefficient having a preselected size relative to other transform coefficients within a band

149. A method of decoding an audio-type signal, the method comprising:

receiving an encoded audio-type signal, the encoded signal of the type encoded by:

sampling the audio-type signal to obtain discrete samples and constructing therefrom frames, each frame obtained by applying a window to the discrete samples;

determining a set of transform coefficients from each of at least some of the frames;

for each of at least some of the sets of transform coefficients:

dividing at least some of the transform coefficients into a plurality of bands, at least one band having a plurality of adjacent transform coefficients; and

encoding the dividing; and

decoding the received encoded audio-type signal, the decoding comprising decoding the dividing.

150. The method of claim 149 further comprising decoding at least some of the transform coefficients using the decoded division.

151. The method of claim 149 wherein the dividing differs for different frames.

152. A method of encoding an audio-type signal, the method comprising:

sampling the audio-type signal to obtain discrete samples and constructing therefrom frames, each frame obtained by applying a window to the discrete samples;

determining a set of transform coefficients from each of at least some of the frames;

for each of at least some of the sets of transform coefficients:

dividing at least some of the transform coefficients into a plurality of bands, at least one band having a plurality of adjacent transform coefficients;

selecting a transform coefficient from each of more than one of the bands, at least one of the selected transform coefficients being from one of the bands having a plurality of adjacent transform coefficients;

processing the selected transform coefficients;

performing a transformation on the processed selected transform coefficients; and

encoding the dividing.

153. A method of decoding an audio-type signal, the method comprising:

receiving an encoded audio-type signal, the encoded signal of the type encoded by:

sampling the audio-type signal to obtain discrete samples and constructing therefrom frames, each frame obtained by applying a window to the discrete samples;

determining a set of transform coefficients from each of at least some of the frames;

for each of at least some of the sets of transform coefficients:

dividing at least some of the transform coefficients into a plurality of bands, at least one band having a plurality of adjacent transform coefficients;

selecting a transform coefficient from each of more than one of the bands, at least one of the selected transform coefficients being from one of the bands having a plurality of adjacent transform coefficients;

processing the selected transform coefficients;

performing a transformation on the processed selected transform coefficients; and

encoding the dividing; and

decoding the encoded audio-type signal, the decoding comprising:

performing an inverse transformation; and

decoding the dividing.